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(54) Title: A NOVEL NITROREDUCTASE AND THERAPEUTIC USES THEREFOR

(57) Abstract

In accordance with the present invention, the gene responsible for metronidazole sensitivity in *H. pylori* has been identified. Mutational inactivation of the gene, which encodes an oxygen–insensitive NADPH nitroreductase, referred to herein as *rdxA* (designated HP0954 in the entire genome sequence) (Tomb *et al.*, 1997) is the cause of naturally acquired Mtz^R in *H. pylori*. In accordance with one embodiment of the present invention, there is provided a method of employing *RdxA* and related compounds, optionally in conjunction with targeting compounds, to convert nitroaromatic compounds to cytotoxins for use in selectively killing or inhibiting the growth of target cell populations. In accordance with another aspect of the present invention, there is provided a method of employing *RdxA* and related compounds in order to convert nitroaromatic compounds to cytotoxins for use in selecting against cells expressing *rdxA*.